



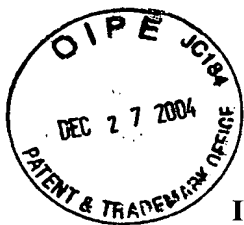
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TRANSMITTAL FORM (to be used for all correspondence after initial filing)		Application Number	09/846,588
		Filing Date	May 1, 2001
		First Named Inventor	Goldman et al.
		Group Art Unit	1636
		Examiner Name	Q. Nguyen
Total Number of Pages in This Submission		Attorney Docket Number	19603/3232 (CRF D-2587B)

ENCLOSURES (check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Supplemental Response/Reply (\$_____) <input type="checkbox"/> After Final <input checked="" type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request (\$_____) <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement (\$_____) <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Notice to File Missing Parts/ Incomplete Application (\$_____) <input type="checkbox"/> A copy of the Notice to File Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition (\$_____) <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer (\$_____) <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (\$_____) (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Application Data Sheet <input type="checkbox"/> Request for Corrected Filing Receipt with Enclosures <input checked="" type="checkbox"/> A self-addressed, prepaid postcard for acknowledging receipt <input type="checkbox"/> Other Enclosure(s) (please identify below): <input type="checkbox"/> Check in the amount of \$_____
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Michael L. Goldman Nixon Peabody LLP Clinton Square, P.O. Box 31051 Rochester, New York 14603-1051 Telephone: (585) 263-1304 Fax: (585) 263-1600
Signature	 Registration No. 30,727
Date	December 23, 2004

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PATENT
Docket No. 19603/3232 (CRF D-2587B)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Goldman et al.)	Examiner:
Serial No.	:	09/846,588)	Q. Nguyen
Cnfrm. No.	:	4784)	Art Unit:
Filed	:	May 1, 2001)	1636
For	:	METHOD OF INDUCING NEURONAL PRODUCTION IN THE BRAIN AND SPINAL CORD)	

SUPPLEMENTAL RESPONSE

MAIL STOP: Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is further to the Amendment filed on December 2, 2004, regarding the above-identified application. In that response, the rejection of claims 28-30, 33-38, 44-46, and 49 under 35 U.S.C. § 112 (first paragraph) for lack of enablement was traversed.

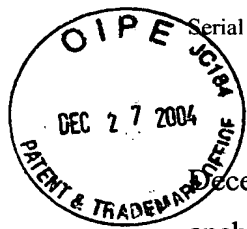
In further support of that traversal, applicants hereby submit the Declaration of M. Flint Beal, M.D. Under 37 C.F.R. § 1.132 ("Beal Declaration") to explain the significance of the present invention (*Id.* at ¶ 5).

Dr. Beal is an expert in the area of neurodegenerative diseases and their treatment, including Huntington's Disease (Beal Declaration ¶ 4). In particular, his areas of research have included the discovery and evaluation of new pharmacological treatment approaches for Huntington's Disease as well as for related neurodegenerative diseases, including amyotrophic lateral sclerosis (*Id.*). With these credentials, he is fully able to review the data concerning the present invention and discuss its significance.

In making his analysis, Dr. Beal considered the previously submitted Declaration of Steven A. Goldman under 37 C.F.R. § 1.132, the Second Declaration of Steven A. Goldman under 37 C.F.R. § 1.132, and the Third Declaration of Steven A. Goldman Under 37 C.F.R. § 1.132 (Beal Declaration ¶ 5).

Based on this review, Dr. Beal noted that applicants found that viral overexpression of brain-derived neurotrophic factor ("BDNF") in the normal adult rodent

ventricular system induces the generation of new neurons from the neural stem cell population of the ventricular subependyma (Beal Declaration ¶ 6). The new neurons migrate to the olfactory bulb primarily, but a large cohort invades the striatum as well, where they integrate as new striatal neurons (*Id.*). These cells adopt a DARPP32/GABAergic/calbindin+ phenotype, characteristic of the medium spiny neuronal population of the caudate-putamen (*Id.*). This is the predominant neostriatal phenotype lost in Huntington's Disease; as such, applicants postulated that the induced generation of this cell type might be a feasible strategy for slowing or reversing disease progression (*Id.*). In an effort to increase the numbers of neurons generated through this approach, applicants found that the numbers of new neurons recruited to the striatum in response to BDNF were increased by concurrently suppressing subependymal gliogenesis, using adenoviral overexpression of noggin protein (*Id.*). Used together, BDNF and noggin overexpression induced the addition of over 350 new neurons/mm³/month to the adult rodent neostriatum (*Id.*). This effect is pronounced in both normal mice and rats, and in mouse transgenic models of Huntington's Disease (*Id.*). The new neurons largely assume medium spiny neuronal phenotype, and project to the globus pallidus (*Id.*). These cells are generated in sufficiently high numbers, over a long enough period of time, and with sufficiently robust maturation, survival, and network integration, that they were able to improve deficient striatal function in the R6-2 mouse model of Huntington's Disease ("HD") (*Id.*). Applicants found that when co-injected with both AdBDNF and AdNoggin intraventricularly, the HD mutant mice exhibited a significant delay in disease progression, sustained motor performance, and prolonged survival relative to untreated and null-virus treated controls (*Id.*). In broad terms, these findings indicate that induced neurogenesis may be viewed as a potential therapeutic modality for HD (*Id.*). Specifically, BDNF overexpression is necessary and sufficient to permit the generation in the adult brain of new striatal neurons of the identical phenotype lost in HD (*Id.*). Furthermore, the addition of noggin augments the numbers of these BDNF-induced neurons, so as to provide a feasible and effective treatment approach to HD (*Id.*). As such, these experiments lay both a conceptual and operational foundation for the BDNF and BDNF/noggin-mediated induction of striatal neurogenesis as a therapeutic strategy in HD (*Id.*).



In view of the Beal Declaration and for the reasons set forth in the December 2, 2004, Amendment, applicants hereby respectfully submit that the lack of enablement rejection is improper and should be withdrawn.

Respectfully submitted,

Date: December 23, 2004

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Wendy L. Barry
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